

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-10. (cancelled).

11. (currently amended) The apparatus of claim ~~14~~ 10, wherein the handle permits for intermittent injections of both the light-transmissive fluid and the contrast fluid.

12. (original) The apparatus of claim 11, wherein the handle further comprises a timer and a switching device configured to automatically inject the light-transmissive fluid and contrast fluid.

13. (cancelled).

14. (previously presented) Apparatus for use in treating an atherosclerotic target region of a coronary vessel in a patient, comprising

a guidewire for accessing the target region intraluminally,

a catheter having (i) a proximal main-body sleeve associated with a handle, (ii) a flexible, non-inflatable, translucent distal-end sleeve joined to the main-body sleeve at a catheter juncture, and (iii) an inner lumen extending through the two sleeves, through which lumen the catheter can be advanced over the guidewire to position the catheter's distal-end sleeve within the target region,

a fiber-optic bundle having a light-diffusing tip, said bundle being adapted for introduction into and slidably associated with the catheter lumen after the catheter's distal-end sleeve is positioned within the target region, and the guidewire is removed;

a proximal-end catheter port through which a light-transmissive fluid can be injected through the catheter into the catheter's distal-end sleeve, and

a proximal-end optical connector to which the fiber-optic bundle can be connected to a laser source, for irradiating the atherosclerotic target region by passing a laser light beam through the fiber optic bundle,

such that the laser beam is distributed along the catheter's distal-end sleeve, for transmission through the sleeve, by light scattering produced by (i) the light-diffusing tip, (ii) the light-transmissive fluid injected into the catheter's distal-end sleeve and

(iii) the distal-end sleeve, and where the scattered light transmitted through the sleeve is effective to photoactivate a photoatherolytic compound contained in the target region; and

wherein the handle comprises a first syringe containing a light-transmissive fluid and a second syringe containing a contrast fluid;

wherein the handle further comprises first and second indicator lights configured to indicate the flow of the light-transmissive fluid and the contrast fluid;

wherein the catheter further comprises a sensor, and

wherein the sensor is configured to activate the first and second indicator lights.

15. (original) The apparatus of claim 14, wherein the sensor is located at the distal end of the catheter.